

COVER PICTURE

An aerial view of Leota Bottom showing the eight uppermost units. The drain canal runs between the units and two feeder canals, east and west, which supply water to the impoundments. The pump structure and settling pond are near the river opposite the tip of the wooded island that extends out of the picture to the left.



NARRATIVE REPORT

OURAY NATIONAL WILDLIFE REFUGE

January 1, 1966 to December 31, 1966

Personnel

H. J. Johnson Refuge Manager
Gerald B. Gill. Assistant Refuge Manager
1/1/66 to 7/16/66. Transferred to Laguna Atascosa NWR.
Clyde E. Nicely Assistant Refuge Manager
EOD 9/2/66. Transferred from Wichita Mountains Refuge.
Mrs. Norma A. Richardson. Clerk Typist
Lewis A. Littleton. Maintenceman
Harold H. Dudley. Maintenceman (Temporary)
Clarence Earl Moore Maintenceman (Temporary)

Y.O.C. Personnel

Garth W. Jarman	7/26/66-8/26/66	Student Aid
Eddie R. Jensen	8/4/66-8/26/66	Student Aid
Gary C. Rose	6/15/66-8/19/66	Student Aid
Willard Thompson	6/7/66-7/14/66	Student Aid
Stewart Wissiup	6/6/66-7/14/66	Student Aid
Patrick W. Wyasket	6/6/66-7/14/66	Student Aid

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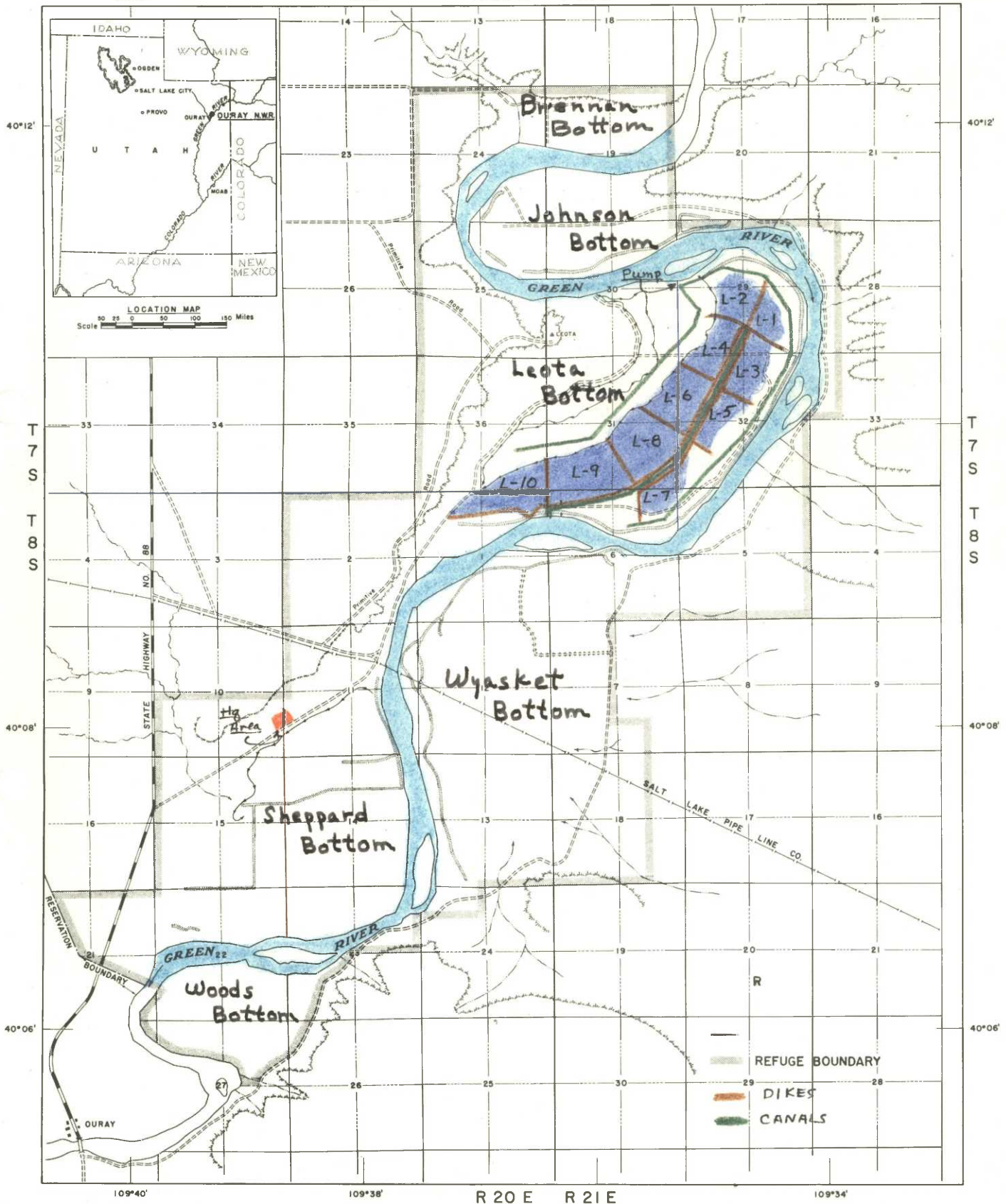
OURAY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
109°40'

UINTAH COUNTY, UTAH

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
109°34'

R 20 E R 21 E



COMPILED IN THE BRANCH OF ENGINEERING
FROM B.L.M. SURVEYS, AERIAL PHOTOGRAPHS
AND SURVEYS BY B.S.F. & W.
REVISED OCT. 1962

ALBUQUERQUE, NEW MEXICO

JANUARY 1960

SALT LAKE MERIDIAN

Scale 0 20 40 80 120 160 CHAINS
0 1/4 1/2 1 1 1/2 2 MILES



TOWNSHIP
DIAGRAM

TRUE NORTH
MAGNETIC N
MEAN DECLINATION
1960

2R UTAH 543 406

OURAY NATIONAL WILDLIFE REFUGE



Ouray National Wildlife Refuge was approved by the Migratory Bird Conservation Commission on May 25, 1960, for purchase with funds available from the sale of Duck Stamps. Land acquisition was initiated by the Bureau of Sport Fisheries and Wildlife, and the refuge began operations in 1961.

The 13,000-acre refuge is situated astride the Green River for 7½ miles and varies in width from 2 to 3½ miles. Its southern boundary is the northern boundary of the Uintah and Ouray (Ute) Indian Reservation. In fact, the refuge now contains 1,747 acres of Indian land leased for wildlife management purposes.

The refuge office is located in Vernal, county seat of Uintah County, Utah. To reach the refuge from Vernal, travel 14 miles west on U.S. Highway 40, turn south on State Highways 209 and 88 toward Ouray Village, which is just 1½ miles from the refuge.

Although important to migrating waterfowl, Ouray Refuge is designed to provide nesting habitat for waterfowl—nesting habitat which is estimated to produce 1,000 Canada geese and 15,000 ducks annually when fully developed. Peak populations during migration should reach 75,000 birds.

Although Utah is a Pacific Flyway state, this refuge contributes birds to both the Central and Pacific Flyways—mostly mallards, redheads, canvasbacks, pintails, and teal.

Within the refuge, the wandering Green River created islands and six large bottomlands which provided nesting habitat for waterfowl in years of flooding. Modern refuge development practices will provide pumped water whenever and wherever required to produce food supplies and water areas needed to attract migrating birds. An intricate system of dikes and canals has been designed to increase the capacity of the basins and allow us to control water flows in such a way as to provide maximum marsh habitat needed for waterfowl production.



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



Located in a semi-desert zone, the refuge records an average annual rainfall of 5½ inches. Temperatures reach 110° in the summertime and have plummeted as low as 48° below zero, in 1952.

The refuge has four distinct biological communities. The river, its sandbars, and vegetated islands comprise 1,600 acres of the refuge total. Waterfowl, beaver, and muskrat are the primary users of this area, which is dominated by cottonwood, willow, and salt cedar. The channel catfish is the only game species of fish in this part of the river, in association with carp, humpbacked sucker, and bony-tailed chub.

Another 1,600 acres of cottonwood, willow, squawbush, and salt cedar border the river itself, providing shelter for mule deer, raccoons, coyotes, bobcats, badgers, porcupines, skunks, and cottontail rabbits. Occasionally, a mountain lion or black bear wanders through this belt. Both golden and bald eagles, hawks, and great-horned owls seek sanctuary on the refuge, along with many songbirds.

River bottomlands occupy another 5,500 acres. Here, the vegetative type depends upon rainfall. If it is wet, aquatic plants take over, while annual weeds and grasses, smartweed, greasewood, and rabbitbrush dominate during years of low rainfall. The principal aquatics are cattail, juncus, bulrush, and carex. This is the land being converted to marsh. Cottontails and jackrabbits share this habitat with ringnecked pheasants, sage grouse, and Gambel's quail. Antelope are occasionally seen.

Higher and drier, 2,500 acres of sandy benches and clay-gravel ridges complete the refuge. Greasewood, rabbitbrush, and cactus predominate in this portion of the refuge, although lupine, mallow, and sand verbenas run riot when spring rains come.

Erosion is a serious problem on this sandy soil where grass is so scarce. On these areas we find the prairie dog, rabbit, and ground squirrel, as well as the badger and the rattlesnake which prey upon them.



The Ouray National Wildlife Refuge welcomes visitors. Many come to photograph scenery and wildlife, to study bird life, or just to enjoy sightseeing. Archery and rifle hunting seasons on deer and antelope are permitted under Utah Fish and Game Department regulations.

Resident personnel on the refuge will be glad to answer questions. Mail should be addressed to the Refuge Manager, Ouray National Wildlife Refuge, P. O. Box 398, Vernal, Utah 84078.

NARRATIVE REPORT

OURAY NATIONAL WILDLIFE REFUGE JANUARY 1, 1966 TO DECEMBER 31, 1966

I. GENERAL

A. Weather Conditions

The weather information in the table below was recorded from the U.S. Weather Bureau Station located at refuge headquarters:

	Temperatures		Precipitation		<u>Snowfall</u>
	<u>Max.</u>	<u>Min.</u>	<u>This Month</u>	<u>Normal</u>	
January	44	-10	0	.41	T
February	48	- 4	.04	.36	1.5
March	78	- 5	.11	.40	2.5
April	82	20	.22	.60	
May	90	29	1.20	.70	
June	98	35	.03	.71	
July	101	45	.30	.52	
August	100	36	.44	.73	
September	92	33	.37	.61	
October	77	17	.35	.61	
November	65	7	.34	.38	
December	48	-23	1.40	.28	10.0
Extremes:	101	-23	Total: 4.80	6.31	14.0

This has been a dry year. In some areas being 1.51" below the annual precipitation average would be a trifle, but here it means we are down a fourth! Every month but January had some measurable precipitation, but it was mostly in scattered, intermittent showers. The largest dose of moisture came with a very wet 8" snow on December 5-7 and stayed, with additions, for a white Christmas.

The winter of 1965-66 was a relatively mild and open one. The ground was thawed and workable by mid-March. Fall of 1966 was nice and Indian Summerish with the first killing frost in early October. However, when winter came it made up for lost time, with consistent sub-zero minimums since the snow in early December.

B. Habitat Conditions

1. Water

As mentioned earlier, precipitation-wise 1966 was a dry year. Spring breakup of ice on the Green River was early in March and was rapid. A combination of fast runoff and ice jamming raised the river and flooded lower Leota Bottom. The water entered a channel in the river front

dike left by the 1962 floods and inundated the site of the present L-10 impoundment.

After years of waiting, on July 6 the first water was pumped into the Leota impoundments. Problems arose immediately with erosion occurring around all the water control structures on the West Feeder Canal. Emergency repairs and riprapping of these structures were made so that pumping did not have to be stopped.

On August 23 water was turned into the East Feeder Canal, leaving enough in the West Canal to maintain levels in the west units. By mid-September all units were at optimum levels and on September 24 the pump was turned off.

With the pump turned off, the units lost an average of .02" per day. While part of this loss was due to evaporation, most was caused by seepage through the still porous dikes. This seepage or "subbing" collected in the Main Drain Canal and caused some erosion and washouts in its banks. When a beaver plugged up the culvert at the river end of the Main Drain, the first thought was to remove him and his handiwork. Then it dawned that he was a better engineer than we were! His plug raised the water level in the drain canal and reduced or retarded the subbing. Needless to say, that industrious paddletail was left to his good works.

After the pump was turned off in September, the settling pond was worked over and its capacity doubled. On October 21 the pump was started again in order to get as much water stored as possible before winter freeze up. The pump was shut down on November 1, with most of the units having been brought back up to their September 24 levels. By mid-December all the units were frozen over.

Spring breakup often coincides closely with the beginning of the nesting season in this area. This makes it highly desirable for us to have as much water as possible left in the impoundments after the thaw. The more water left, the less time it will take to bring the water levels up by pumping. Once the birds start to nest we cannot fluctuate the water levels and could possibly get caught with less than optimum water levels.

It isn't known how much water will remain in the units by spring, since subbing is still occurring below the ice layer. This question and others about water and nesting can only be answered by time.

One problem noted in the pumping operation in Leota was the loss of water in the East Canal. The sandy, porous soil in this ditch absorbed approximately half of the water sent down it. Since much of the river sediment has settled out of the water before it gets into the canals, natural sealing of this ditch may not be possible. Another factor is the growth of weeds in this ditch. If they are controlled mechanically, then the crust will be periodically disturbed and no sealing can take place. To cure these two problems it may be necessary some time in the future to line the East Canal.

On June 30 the refuge started its "turn" of 150 hours Ouray Park Irrigation Company water. This water was stored behind the Sheppard Bottom control dike.

2. Food and Cover

Natural cover on the refuge was fairly abundant in spite of the low moisture level going into spring. The forbs and grasses of this arid area have a rather low moisture requirement.

Natural food production was hurt by the droughty conditions. Fruit and seed production on wildflowers, other forbs and bushes, which supply food for upland birds, was low. The lower end of Leota Bottom, which was flooded during spring breakup, had a good stand of smartweed, but this was not utilized by waterfowl after the water receded.

Thirty-one acres of corn left over from the 1965 crop was cut for the spring migrants in mid-March. This crop was also highly used by pheasants.

Forty acres of corn and 36.5 acres of wheat were planted this year. The 40 acres of fall wheat planted in 1965 headed and produced approximately 30 bushels per acre. This wheat was mowed for the fall migrants and for our local flock of Canada Geese, all of it being cut by early October.

In November and December 10 acres of corn were knocked down and heavily utilized by large numbers of ducks and geese.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

Through January and most of February, the only waterfowl using the refuge were a flock of Canada geese. These birds,

about 180 in number, were mostly from the former captive flock. They were fed wheat at feeding stations near headquarters and also browsed the fall wheat crop.

Early March brought the first spring migrants. Canada goose numbers rose to 240 and duck numbers jumped to 723 Mallards, 1200 Pintails, 20 Widgeon, 630 Green-winged Teal, 10 Redhead, 5 Ring-necked and 8 Canvasbacks --- and 4 Coot. This was the peak for Mallard, Pintail and Green-winged Teal with a few Gadwall, Shoveler, Scaup, Goldeneye and Bufflehead being picked up later in the month.

On February 26, two pair of geese were seen going through their mating display. By March 1, five pair of geese had begun to set up housekeeping near headquarters. In all, ten goose nests were found during the season; seven in Sheppard Bottom, two in Wood Bottom, and one on a river island off Leota Bottom. One nest in Sheppard was known to have been destroyed and subsequently six broods and a total of 26 goslings were seen.

Eighteen duck broods with a total of 93 ducklings were counted, mostly in Leota and Sheppard Bottoms. the first water pumped into the Leota impoundments was put to almost immediate beneficial use. Within a week after water was started into Unit L-6, seven duck broods (six Gadwall and one Green-winged Teal) with a total of 39 ducklings showed up. Quick work!

The fall migration was delayed and drawn out due to the mild fall weather. Due to these irregular conditions no definite peak of migrational movement could be pinpointed. At one time or another, peaks of 350 Canada geese, 7151 ducks, and 8 Whistling swans were reached.

A large concentration of 104 Whistling Swans showed up on Halloween day at nearby Pelican Lake. Most of these birds stayed around throughout November, giving local swam permit holders heart throbs, but very poor shooting.

The filling of the Leota impoundments coincided with the fall buildup, bringing about a substantial increase in duck use-days. Though found in all units, Coots concentrated in Unit L-6. They increased steadily to a peak of 3305 in mid-November with use-days going to 166,229, as compared to 22,121 in 1965.

It is probable that most of the birds in Leota were locals drawn from Pelican Lake or elsewhere along the Green River. Few Mallards used the Leota Units, seeming to prefer the

WATERFOWL USE DAYS BY QUARTER

1963, 1964, 1965, 1966

	January - April			May - August			September - December			Total		
Year	Swans	Geese	Ducks	Swans	Geese	Ducks	Swans	Geese	Ducks	Swans	Geese	Ducks
1966	84	16,093	34,426	0	9,335	56,473	91	23,866	322,804	175	49,294	413,703
1965	0	*10,252	33,059	0	*12,684	42,511	294	*30,982	290,437	294	*53,918	366,007
1964	0	1,169	70,658	0	574	11,753	0	6,185	126,110	0	7,928	208,521
1963	0	504	1,579	0	952	9,429	0	8,610	211,517	0	10,066	222,525

* Includes captive geese released March 21.

TABLE 1.

water and sand bars of the Green River along with the majority of the geese. Other species of ducks and the Coots were found almost exclusively in Leota.

Within a week after the snow in early December, all water on the refuge was frozen over except for some openings on the river. The waterfowl population dropped to 300 geese and 1500 Mallards and remained steady through the rest of the year. These birds kept open a hole in the river ice and continued to feed in the corn field.

2. Cranes.

On March 20 the first flight of north-bound Sandhills was seen, 72 in all. The spring peak was reached a week later when 100 birds were seen.

The first fall migrants were 31 birds seen in Leota on September 21. A peak of 104 birds was noted on October 6.

3. Mourning Doves.

An unusual observation of eight doves was made on January 18. The birds were seen using the refuge goose feeders. A pair of doves was seen on January 29 and remained in the headquarters area through March.

An estimated peak of 2500 birds was reached the first week in July. A total of 43 doves were banded in May and June.

4. Other Waterbirds.

The first shore birds of the year were two Killdeer and two Black-necked Stilts that showed up in mid-March. Other waterbirds seen were: Pied-billed, Eared and Western Grebe, Great Blue Heron, Snowy Egret, Glossy Ibis, Pelican, Black-crowned Night Heron, Yellow-legs, Wilson's Phalarope, Avocet, Dowitcher, Ring-billed Gull, Common Tern, Forster's Tern, and Franklin Gull.

The last waterbirds seen were ten Killdeer on November 10 in Leota Bottom and one Eared Grebe in Leota on December 1.

B. Upland Game Birds

1. Ring-necked Pheasant

In March and April a pheasant crow count was made. This census technique indicated a population of 420 birds going into the nesting season. Nesting success was good with an estimated 350 young being produced. The refuge population going into the winter was about 900 birds.

2. Chukar Partridge.

No observations during the year.

3. Sage Grouse.

Two of these birds were seen in lower Leota Bottom near the present site of L-10 Dike.

4. Gambel's Quail.

A small flock of six birds was seen several times near the dugway leading into Leota Bottom.

C. Big Game Animals.

1. Mule Deer.

Coming into the year there were estimated to be only 20 deer using the refuge. With the coming of spring this number increased. Due to the dry conditions, by late summer the only green forage available in the area was in the river bottoms and deer began to concentrate there. By the opening of rifle deer season, October 22, there were an estimated 150 deer on the refuge. At the close of the year the population is about 50 animals.

See the Public Relations section for the results of the archery and rifle deer seasons.

2. Antelope.

No observations of antelope were made on the refuge, though several were seen on surrounding lands. Doubtless, some of these animals have crossed the refuge on the way to and from water.

D. Fur Animals, Predators, Rodents and Other Mammals.

The beaver is the only fur animal of commercial significance. The refuge population is not high, with most living along the river bank. Three beaver moved into the Leota Main Drain Canal in early September, as soon as subbing from the units filled the canal.

There are no large populations of predators on the area. Striped skunks are the most numerous and an effort is made to keep their numbers down. Twelve skunks, two badger, and one raccoon were removed from Leota and Sheppard Bottoms.

The refuge is known to have at least six Bobcats. A family of two adults and three young were seen in Leota Bottom and one adult was seen in Wyasket Bottom. No coyotes were seen.

Jack rabbits, both White-tailed and Black-tailed, were abundant in the headquarters area. Cottontails seemed to be in a cyclic peak, with a high rabbit population all over this part of Utah. In the summer and fall rabbits caused considerable damage to flowers, shrubs and trees in the residence lawns.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.

No unusual sightings were made this year. Species seen were Bald and Golden Eagles, Red-tailed Hawks, Marsh Hawks, American Rough-legged Hawks, Sparrow Hawks, Swainson's Hawk, Prairie Hawk, Cooper's Hawk, and Great Horned Owl.

Eagle numbers were not very high on the refuge this year. Peaks of four for both Bald and Golden Eagles were recorded.

A concentration of six Marsh Hawks settled in Leota Bottom for most of October and December. They killed some ducks and coots, but did not become a serious enough problem to require extermination.

Magpies were again numerous with approximately 250 birds present at the end of the year.

F. Other Birds.

An unusual concentration of about 150 Meadowlarks were present in January and February.

G. Fish

No fishing was observed on the refuge.

Several small fish, identified as Flannelmouth Suckers (Catostomus latipinnis) were collected from the Leota West Feeder Canal. They apparently survived a trip up from the Green River through the Leota pump.

H. Reptiles.

The usual garter snakes, bull snakes and water snakes.

I. Disease.

None to report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Contracts.

The contract for collecting, assembling, testing and installing a pump in Leota Bottom, No. 14-16-0002-487, was completed. The contract, granted to Utility Engineers, Incorporated, Salt Lake City, was awarded in 1965, but actual installation started April 13, 1966. Installation of the unit, capable of discharging 1,000 to 12,000 g.p.h. at a fixed TDH of 22 feet, was completed June 30. Completion of this contract allowed us to fill the Leota impoundments ---- finally!

Contract No. 14-16-0002-3021 was awarded to Knowlton H. Brown Construction, Brigham City, Utah, for construction of a combination garage and shop building. Work commenced on April 12 and was completed on August 13. Total cost was \$62,318.92.

Contract No. 14-16-0002-3076 for construction of L-10 Dike in Leota Bottom was granted to Hansen and Phillips Construction Company, Roosevelt, Utah. This included building the dike, one Armco drain structure and reshaping 675 feet of the existing spoil bank of the Main Drain Canal. Work started November 8 and was completed December 22. Total cost was \$11,666.66.

Contract No. 14-16-0002-3087 for the gravelling and rip-rapping of the Leota Bottom dikes was issued to Robbins Construction Company, Duchesne, Utah. Work on this job has not been started.

2. Equipment.

Ouray traded its International farm tractor to Hutton Lake Refuge for a Minneapolis Moline 5-Star. In June the D-4 Dozer was transferred to Browns Park Refuge.

On May 20 all refuge motor vehicles, except the stake-dump truck, were transferred to the GSA Motor Pool here in Vernal. It was only a paper transfer, but now a fixed rate/mile is paid to GSA for use of the vehicles. It is too early yet to report on the merits of this change.

3. Earthwork, Diking, Ditching, Gravelling

A flood control dike was built above Sheppard Bottom on an equipment rental with operators basis. Robbins Construction Company, Duchesne, Utah, used two electric 8-yard carryalls to move the 17,600 cubic yards of earth fill placed in the dike. Concrete and CMP control structures were built and installed by refuge personnel to give water control. The headquarters entrance road was rebuilt on this dike.

Robbins Construction Company also gravel-surfaced three-quarter miles of the entrance road into Leota Bottom, again using their two electric 8-yard carryalls.

A three-quarter mile canal was constructed to carry the refuge's shares of Ouray Park Irrigation Company water. This water can be stored behind the Sheppard Bottom control dike.

The settling pond at the Leota Bottom pump site was enlarged to about double its former capacity and the pump outlet structure was modified. This work was done with refuge personnel and equipment.

4. Fencing.

A fencing crew of the Ute Indian Tribe, using refuge materials, built two miles of internal fence to separate grazing units. The fence was of three-strand barbed wire and steel post construction.

B. Plantings

1. Marsh and Aquatic Planting.

In late September, 25 pounds of Sago Pondweed (Potamogeton pectinatus) seed was collected at Bear River Refuge and seeded in the Leota Bottom units. The seed was distributed in five of the nine units with approximately two acres total coverage.

2. Trees and Shrubs.

None

3. Upland Herbaceous Plants.

None

4. Cultivated Crops.

A total of 76.5 acres were planted this year, 40 with corn and 36.5 with fall wheat. The corn made good; however, alkali spots and weeds reduced the average yield to 50-60 bushels per acre. The fall wheat was planted and irrigated in September, sprouting to provide good goose browse before the first December snow.

The fall wheat planted in 1965 made a good growth in '66 but it, too, was beset by weeds which reduced the average yield to about 30 bushels per acre.

These refuge crops got good utilization by several wildlife species. Though primarily for waterfowl, they also benefit the pheasant and deer populations. Flocks of up to 100 pheasants were seen in one mowed wheat field in the fall. Before deer season several deer made nightly forays from Leota and Sheppard Bottoms to the refuge corn field.

C. Collections and Receipts

1. Seed or Other Propagules.

None.

2. Specimen.

A University of Utah graduate student in ornithology working on the distribution of birds of this area was allowed to collect several specimens. He took five Oregon Juncos, four Red-winged Blackbirds, three White-crowned Sparrows, three Pine Siskins, one Ring-necked Pheasant, one Robin, one Mountain Bluebird, one Say's Phoebe, and one Porcupine.

A Raccoon was donated to the Zoology Department of the University of Utah. The raccoon's distribution in Utah is limited to the northeast corner along the Green River and its tributaries. This specimen was only the second for the University's collection.

D. Control of Vegetation.

1. Mechanical.

Salt Cedar (Tamarix gallica) continues to be one of the refuge's major pest plants. This widespread exotic is found all along the Green River and in every one of the refuge bottoms that have in the past been subject to flooding. This plant is very hardy and difficult to control. Thus far our efforts have been mainly restricted to mechanical means of control. Three methods have been tried; mowing with a rotary cutter, plowing and discing.

Of these, mowing has proven to be the most desirable method. While plowing may be more effective than mowing, it is far too slow to be used over a large area and is also limited by soil type and terrain. This year 250 acres of land in Leota Bottom that is infested with salt cedar was mowed with a tractor-drawn rotary cutter. This land was inside the units that were flooded, starting in the summer. It is hoped that regrowth on that acreage can be controlled by manipulation of water levels.

One problem encountered was flat tires on the tractor caused by sharp salt cedar stubble. Often the operator spent as much time changing and fixing tires as he did mowing.

The problem of salt cedar infestation will undoubtedly be a perennial one here. The plant is well established on refuge land that has been or will be developed for farming or nesting. The water pumped from the river offers a source of reseeding. Undoubtedly, some chemical means will have to be sought when control acreages become more extensive.

2. Chemical.

Some experimentation was done with a small amount of 2,4-D left over from last year's cottonwood sprout control work. This was used to spray Russian Thistle and Seep Weed in the Leota East Feeder Canal. Results were inconclusive due to the small scale of the project and the fact that the plants had already attained their full growth. The weeds were finally removed with the refuge owned Cat 12 grader.

E. Planned Burning None.

F. Fires

There was only one fire for the year, but it was a dandy! It started in Sheppard Bottom on March 12, ignited by sparks from the exhaust of a timber cutting permittee's chain saw. Discovered by refuge personnel, it was attacked, contained and a fire break dozed around it before it consumed more than 17 acres.

The fire was thought to be well under control, if not out, but on March 30 winds fanned embers to life and blew sparks across the fire guard. The race was on! The fire spread toward Ouray Village, then the wind turned it back upstream. It jumped to an island in the Green River, burning 25 acres there and jumping across the river to Wyasket Bottom. There the fire was kept to one-half acre, but the lower end flared up and Ouray was again threatened. Finally, on April 3, the fire was contained and considered under control. A total of 420 acres was burned over by the fire. Though started accidentally and necessary to control due to its threat to Ouray and refuge croplands, the fire was of considerable benefit. It burned out much of the dense brush along that part of the river, clearing that would have been made necessary by future development any way. Also, the burn received some timely spring rains resulting in excellent grass regrowth. The lush grass of the burn area was the best on the refuge.

IV. RESOURCE MANAGEMENT

A. Grazing

The following table lists all grazing permits in effect this year. The new permits issued during the year are starred with an asterick (*).

<u>Permittee</u>	<u>AUM's</u>	<u>Acres Grazed</u>	<u>Location</u>	<u>Effective Date</u>
Gale G. Wilkins (Permit Ouray NWR-1-65)	483	660	Unit G-1	9/15/65 to 4/15/66

<u>Permittee</u>	<u>AUM's</u>	<u>Acres Grazed</u>	<u>Location</u>	<u>Effective Date</u>
Ray Sprouse (Permit Ouray NWR-3-65)	325	2840	Unit G-5	11/1/65 to 4/30/66
*Gale G. Wilkins (Permit OUR-6-66)	30	660	Unit G-1	4/16 to 4/30/66
*LaRue Pickup (Permit OUR-7-66)	245	1320	Tracts 5, 5a, 5d, 5e, 5f and 5g	6/1/66 to 12/31/66
*Gale G. Wilkins (Permit OUR-9-66)	450 (65 cattle and 4 horses)	3765	Units G-1, G-2 and G-6.	9/15/66 to 2/28/67
*Ute Indian Tribe (Permit OUR-10-66)	375	1048	Tracts 20b, 20c, 5b, 5c, 37, 40, 31, 41	10/1/66 to 12/31/66

B. Haying.

One permit for the taking of alfalfa hay from 20 acres in Sheppard Bottom was issued to Gale G. Wilkins. Under this permit, OUR-8-66, 6.75 tons of hay were harvested.

C. Fur Harvest.

Beaver trapping was conducted on the Green River by private trappers. The river itself is under state control and the trapping on it is under the local Game and Fish Department's jurisdiction. The harvest from the river within the refuge's boundaries is unknown.

D. Timber Removal.

The special use permit issued in 1964 to Ivan Anderson for removal of cottonwood timber was still in effect. This year Anderson cut timber in Sheppard Bottom and on a river island off Wyasket Bottom. See NR-11.

E. Commercial Fishing.

None.

F. Other Uses.

Right-of-way was granted to the Gulf Oil Corporation for drilling three water wells on Refuge Tract 13a and for laying a pipe line

to carry this water to their oil fields east of the refuge. Construction of the pipeline and the three well structures was completed in March.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

A. Recreational Uses

There were a total of 431 visits to the refuge for the year. The largest category of these was deer hunters, both archery and rifle, numbering 235. Miscellaneous visits made up the rest with 196, and included in this category were 86 visits for recreational purposes such as sightseeing, bird watching, etc.

The refuge's history of public use for recreational purposes has been one of comparatively low pressure. The opening of the refuge to deer hunting in 1965 and 1966 better than doubled the recreational visits.

Thus far, the refuge has had no developments or facilities to attract or accommodate visitors. As nesting and resting populations of waterfowl are built up and as such facilities as tour roads, picnic areas and rest rooms are added, the public use will pick up. A visitor center is planned for the future when public pressure will justify it. Undoubtedly, in the future, parts of the refuge will be opened to the hunting of waterfowl and such upland species as the Ring-necked Pheasant.

Nearby recreational lands of the Forest Service, Bureau of Reclamation and Park Service provide a quantity of recreational activities such as camping, boating and picnicking. There will therefore probably never be a high pressure on the refuge for these activities. Our intensive development for nesting and migrational resting will preclude high public use at these times in any event. The prime recreational benefits of the refuge to the community will be to provide some quality hunting opportunities and to give people a chance to observe the native wildlife and the operations of a wildlife refuge. With increased and future development the refuge will become a favorite area for members of the local community and for tourists.

B. Refuge Visitors

Robert W. Scott

2/3,5/4

River Basin Studies,
Salt Lake City

Clark D. Johnson	2/3, 5/5	River Basin Studies Salt Lake City
Jay Cordary	2/16	R. O., Realty Acquisition
O. W. Morris	2/18, 5/18	Dist. Super., Div. of Wildlife Services, Salt Lake City
Larry Peterson	2/29	Fisheries Services Biologist
Lee Marlatt	3/29	Manager, Hutton Lake NWR Tractor transfer
Ernest Morris	4/12, 5/3, 6/14	R.O., Engineering Construction
William H. Doyle	4/12	R.O., Engineering Construction
Ed C. Zigler	5/3	C.O., Engineering
Clay E. Crawford	5/19	R.O., Div. Wildlife Services
H. M. Boeker	5/19	R.O., Div. Wildlife Services
Raymond B. St. John	6/7, 8/10	R.O., Div. of Realty
J. Austin Beard	6/22, 11/16, 12/8	R.O., Div. of Realty Acquisition
Francis V. Olsen	7/15, 10/5	R.O., Engineering, Inspection
Anthony J. Opstedal	7/26	R.O., Engineering Inspection
Marcus C. Nelson	7/28, 8/24	R.O., Div. of Refuges Inspection, Safety
John Gatlin	8/1	R.O., Director Meeting with BIA
Clay E. Crawford	8/1	R.O., Div. Wildlife Services Meeting with BIA

H. M. Boeker	8/1, 8/23, 9/26, 10/4	R.O., Biologist Meeting with BIA, Waterfowl
Bob Nelson	8/1	C.O., Div. Wildlife Services Meeting with BIA
Ernest McCormack	8/1	U. S. G.A.O. Supervisory Audit
William J. Petrik	8/2, 11/3	R.O., Engineering Survey
Thomas Reed	8/3	C.O., Engineering Visit
Thomas Martinez	8/3, 9/26	R.O., Engineering Visit, Planning
B. J. Shaefer	8/10	R.O., Realty Visit
John C. Jones	8/24	Office of Safety, Wash. D.C. Safety Inspection
Roger D. Johnson	8/29	R.O., Wildlife Biologist Orientation
John D. Umberger	10/5	Region III, Engineering Visit
Henry Edgar	10/12, 11/3	R.O. Engineering Water Rights, Visit
Vanez Wilson	10/12	Manager, Bear River Refuge Visit
Larry Means	11/1	Manager, Seedskadee NWR Visit
William L. Stabler	11/3	R.O., Planning Engineer Master Planning
Paul Steele	11/3	R.O., Master Planner Master Planning
Don Redfearn	11/25	Manager, Nat. Elk Refuge Personal Visit

C. Refuge Participation

Manager Johnson and Maintenceman Littleton attended condemnation proceedings in Salt Lake City concerning Leota Bottom lands on January 25.

Assistant Manager Gill attended the Civil Service Commission Training Session "You Meet the Public" on January 20 in Salt Lake City.

On March 9, Manager Johnson showed the film "Pelican Island," at a meeting of the Randlett-Ouray Lions Club.

Assistant Manager Gill and Maintenceman Littleton supervised seventeen Boy Scouts and their leaders in a search for Canada goose nests on April 16.

Manager Johnson assisted Bureau of Land Management personnel on a survey of Desert Bighorn Sheep range in central Utah from April 12 to 18.

Manager Johnson attended an inter-agency meeting with the BLM, Forest Service, Park Service, and Utah and Colorado Game and Fish Departments to discuss Utah deer and elk hunting proposals.

Assistant Manager Gill presented a film "The Mallard" to 22 members of the Avalon Ward Mutual (an L.D.S. Church function).

Uintah County Commissioners were presented with a check for \$3,000+ under the Refuge Revenue Sharing Act.

Assistant Manager Nicely attended a Law Enforcement session given by GMA Bill Ritter in Salt Lake City on September 28.

The films "Operation Fish Drop" and "Our Magic Land" were shown to a meeting of the Randlett-Ouray Lions Club on December 8 by Assistant Manager Nicely. These films were shown the next day at the Vernal Office to 15 employees of other Federal and State agencies.

D. Hunting

This was the second year that portions of the refuge have been opened to archery and rifle hunting of deer. All refuge owned and leased land with the exception of Leota Bottom was opened for the two seasons.

A determined group of local archers devoted twenty-two man days during the bow season (August 27 to September 11) to the pursuit of elusive refuge deer. One three-point buck was

killed by Rex Curry of Ft. Duchesne. This harvest, though meager, was one more than was taken in 1965.

The rifle season, from October 22 through November 1, was much shorter than the bow season, but the bullet proved much more effective than the arrow. A total of 27 deer were removed, 22 bucks and five does, most of them on opening day. The land west of the river was open to "bucks only," while either sex could be taken on the east side. A total of approximately 210 man days were expended during this hunt.

E. Violations

Two violations occurred on the refuge, but no apprehension or cases were made, alas.

On October 11, the head and viscera of a doe deer were found in Leota Bottom near the site of L-10 Dike. The poachers apparently shot the deer in daylight on the preceding Sunday while refuge personnel were checking waterfowl hunters off the refuge. This is the first known poaching case in the refuge's history and caused a chain and lock to be installed on the Leota Bottom entrance road.

Waterfowl hunters apparently used another "entrance" to Leota Bottom to engage in some illegal sport. Three dead Coot and a number of shotgun shell casings were found on L-1 Dike on the morning of October 15. The gunners walked into the Leota Bottom from the river where they had moored their boat. That Part of the river within the refuge is closed to hunting of waterfowl, and is posted to this effect.

F. Safety

An attempt was made to hold regular monthly safety meetings to discuss the safety program and give suggestions to employees on doing their jobs more safely.

The refuge safety record was shattered on June 10 when Temporary Maintenceman Earl Moore was injured on the job while trying to adjust the clutch of the refuge-owned D-6 Dozer. He attempted this while the motor was running and the iron pry bar he was using struck the whirling fly wheel and thrust the rod into his chest. The injury was very serious and Moore could not return to work until July 18. This unfortunate and easily preventable accident could very easily have been a fatal one.

VII. OTHER ITEMS

A. Items of Interest

Assistant Manager Clyde E. Nicely arrived at Ouray on September 5, transferring from Wichita Mountains Refuge in Oklahoma. He replaced Gerald B. Gill who transferred to the Assistant Manager position at Laguna Atascosa Refuge in Texas on July 15.

Maintenanceman Lewis A. Littleton underwent rather serious stomach surgery on March 3 in Salt Lake City. Lew came through the operation with flying colors and back to the refuge in good shape.

There was a spate of temporary appointments this year with eight men being hired at various times. Six of these appointments were for Student Aids under the Y.O.C. program.

Credit is given Manager Johnson, Maintenanceman Littleton, and Clerk Norma Richardson for their help in providing information on the activities of the first part of the year and in assembling this report. Mrs. Richardson did the typing of the Narrative.

B. Photographs

Photographs follow the N.R. forms.

C. Signature

Prepared by:

Clyde E. Nicely

Clyde E. Nicely
Assistant Refuge Manager

Submitted by:

H. J. Johnson

H. J. Johnson, Refuge Manager

Reviewed by: H

Date: _____

Reviewed by:

W. O. Nelson

Date: Associate Regional Director
4/7/68

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Ouray

MONTHS OF January TO April, 19 66

[illegible]

3-1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE

Gray

MONTHS OF

January

TO

April

, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimate seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling			6	6					84		
Trumpeter											
Geese:											
Canada	202	89	64	64	57	57	61	65	16,093	2	11
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	160	202	252	252	25	109	90	96	13,594		
Black											
Gadwall			7	7		10	20	15	413		
Baldpate	20		15	15			8		544		
Pintail	153	50	110	110		15	19	22	11,893		
Green-winged teal	115		11	11	10	23	5		2,649		
Blue-winged teal											
Cinnamon teal						6	6	5	119		
Shoveler			1	1		7	0	40	399		
Wood											
Redhead	70		20	20		6	15		1,127		
Ring-necked	20		4	4		2	10		315		
Canvasback									36		
Scaup			3	3		10	20		280		
Goldeneye											
Bufflehead	1		2	2					35		
Ruddy											
Other											
Am. Merganser							3		21		
Coot:			15	15	25		81	101	1,607		
				(over)							

3-1750
Cont. NR-1
(Rev. March 1953)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	84	6	0	Principal feeding areas <u>Refuge croplands near headquarters.</u>
Geese	16,093	252	11	
Ducks	34,426	2,596	0	Principal nesting areas <u>Rear refuge goose pond at head-</u>
Coots	1,708 *	101	0	<u>quarters.</u>

* Includes 21 use-days for American Merganser.

Reported by

Gerald B. Gill, Assistant Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

White-fronted
Snow
Blue
Ring-necked
Mallard
Black
Gadwall
Baldpate
Pintail
Green-winged teal
Blue-winged teal
Coot
Ruddy
Other

W A T E R F O W L

REFUGE Ouray

MONTHS OF May 1 TO August 31, 1966

(1) Species	(2) Weeks of reporting period									
	5/1-7	5/8-14	5/15-21	5/22-28	5/29-6/4	6/5-11	6/12-18	6/19-25	6/26-7/2	7/3-9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	65	52	74	53	48	66	35	70	70	77
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	96	58	33	41	56	20	5	37	18	20
Black										
Gadwall	15		27	26	52	44	53	17	10	8
Baldpate			8	12	10	8	20	4		
Pintail	22	1	9	8	2	13		2	4	1
Green-winged teal			2	2	28	27	20	3	8	4
Blue-winged teal					6	1				
Cinnamon teal	5		8	2	8	15	3	1	2	
Shoveler	40	4	10		10			2	2	
Wood										
Redhead			4	2				2		1
Ring-necked				2						
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot	101	200	95	120	160	100		30	20	20

3-1750a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Ouray MONTHS OF May 1 TO August 31, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen Estimated total	
	7/10-16 11	7/17-23 12	7/24-30 13	7/31-8/6 14	8/7-13 15	8/14-20 16	8/21-26 17	8/27-30 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	70	43	93	94	147	247	3	211	9,335	3	17*
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	18	35	100	100	300	2,060	1,200	1,300	34,579	5	37*
Black											
Gadwall	8			20	300	20	300	300	7,500	8	43*
Baldpate									434		
Pintail						16			538	4	11*
Green-winged teal		34	50	80	50	35	100	100	3,501		
Blue-winged teal	6	31	46	50	50	380	200	340	6,750	1	2*
Cinnamon teal	2	21		20			50	30	1,079		
Shoveler						45	30	20	1,081		
Wood											
Redhead						100			763		
Ring-necked									14		
Canvasback					4				28		
Scaup											
Goldeneye											
Bufflehead											
Ruddy					8	150	100	100	2,206		
Other											
Coot:	100	100	100	100	500	1,375	600	900	29,647		
*Actual Count					(over)						

W A T E R F O W L

REFUGE Ouray National Wildlife Refuge

MONTHS OF September 1, TO December 31, 1966

(1) Species	(2) Weeks of reporting period									
	9/1-3	9/4-10	9/11-17	9/18-24	9/25-10/1	10/2-8	10/9-15	10/16-22	10/23-29	10/30-11/5
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling							8			
Trumpeter										
Geese:										
Canada	211	230	247		143	100	234	200	75	350
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	1300	1200	2060	1200	444	1230	2600	2402	150	125
Black										
Gadwall	300	140	20	65		362	29	100	50	
Baldpate				10		5			10	
Pintail		10	16	300	250	735	2254	840	512	215
Green-winged teal	100	100	35	125	50	175	50			
Blue-winged teal	340	260	380	325	422	60	131	177		16
Cinnamon teal	30									
Shoveler	20	12	45	535	150	445	1470	995	612	165
Wood										
Redhead		24	100	150	230		282	50	50	25
Ring-necked				19		60				
Canvasback						12				
Scaup		2		6		1	1		61	75
Goldeneye										6
Bufflehead							10	102	97	240
Ruddy	100	200	150	200	101	265	325	200	335	295
Other										
Coot	900	870	1375	2670	2384	2430	3305	2985	595	590

3-1750a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Ouray National Wildlife Refuge

MONTHS OF September 1 TO December 31, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen Estimated total	
	11/6-12 11	11/13-19 12	11/20-26 13	11/27-12/3 14	12/4-10 15	12/11-17 16	12/18-24 17	12/25-31 18			
Swans:											
Whistling	4	1							91		
Trumpeter											
Geese:											
Canada	225		180	255	280	300	300	300	24,566	5	28
Cackling											
Brant											
White-fronted			3						21		
Snow											
Blue											
Other											
Ducks:											
Mallard	3000	107	125	2500	1500	1500	1500	1500	165,901	5	37
Black											
Gadwall	50	90	15						7,347	8	43
Baldpate									175		
Pintail	325	353	475	235	1000				52,640	4	11
Green-winged teal		5			60				4,500		
Blue-winged teal			1						13,424	1	2
Cinnamon teal									90		
Shoveler	418	265	290	51	10				38,291		
Wood											
Redhead	8	29	10						6,706		
Ring-necked	60	20	60						1,533		
Canvasback									84		
Scaup	26	43	17						1,624		
Goldeneye		6	35	11					406		
Bufflehead	390	445	505	36					12,775		
Ruddy	170	100	80	2					17,261		
Other											
Coot:	493	595	340	188	60				134,260		
					(over)						

	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	91	8		Principal feeding areas <u>Leota Bottom impoundments and</u>
Geese	24,587	350		<u>Sheppard Bottom farm fields.</u>
Ducks	322,757	7152		Principal nesting areas <u>Leota Bottom</u>
Coots	134,260	3305		

Reported by

Clyde E. Nicely
Clyde E. Nicely, Asst. Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

(over)

Form NR-1A
(Aug. 1952)

Refuge Quay Months of January to April, 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Western Grebe	1	4/21	1	4/21-28	1	4/28				
White Pelican	1	3/31	1	3/31-5/6	Still	present				
Great Blue Heron	12	4/14	39	4/23-29	Still	present				
Snowy Egret	1	5/3	1	5/3	Still	present				
Black-crowned Night Heron	1	4/28	1	4/28-5/6	Still	present				
Glossy Ibis	1	4/14	1	4/14	1	4/14				
*Sandhill Crane	72	3/24	190	4/2	20	4/14				
*All cranes observed were flying over the refuge. It is unknown if any stopped.										
II. Shorebirds, Gulls and Terns:										
Killdeer	2	3/17	35	4/8-15	Still	present				
Long-billed Curlew	1	4/14	1	4/14-15	1	4/15				
Sandpiper	4	4/28	4	4/28	4	4/28				
Yellowlegs	1	4/21	4	4/30-5/6	Still	present				
Avocet	1	4/28	1	4/28	1	4/28				
Black-necked Stilt	2	3/31	2	3/31-4/8	2	4/8				
Wilson's Phalarope	2	4/21	30	4/23-28	Still	present				
California Gull	1	3/17	20	4/30-5/6	Still	present				
Forster's Tern	5	4/28	5	4/28-5/6	Still	present				

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	8	1/20	250	4/10-5/6	Still present
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	1	1/13	4	3/19-25	3 4/7
Duck hawk	Not seen				
Horned owl	Not seen				
Magpie	75	1/20	200	2/19-25	Still present
Raven					
Crow					
Bald Eagle	2	3/17	2	3/19-25	1 4/7
Am. Rough-legged Hawk	1	1/6	3	1/23-21	2 4/7
Prairie Hawk	1	2/3	1		Still present
Sparrow Hawk	3	2/3	10	4/21-5/6	Still present
Cooper Hawk	1	3/24	2	4/23-29	1 5/3
Turkey Vulture	2	4/14	2	3/14-22	Still present
Reported by					

Red-tailed and Marsh Hawks seem to be year-round residents.

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS

Refuge Ouray Months of May 1 to August 31, 19 66

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Eared Grebe	12	8-11	60	8-31	60	8-31				
Pied-billed Grebe	2	5-19	Only observation for period							
Pelican	1	5-12	Only observation for period							
Double breasted Cormorant										
Great Blue Heron	18	5-1	25	5-19	1	9-1				
Snowy Egret	1	5-1	-20	6-16	12	8-11				
Black Crowned Heron					12	9-1				
Glossy Ibis	70	8-11	-80	8-18	75	9-1				
II. Shorebirds, Gulls and Terns:										
Killdeer	21	5-12	40	7-25	20	8-18				
Long-billed Curlew										
Sandpiper										
Western Willet										
Yellow legs	4	5-1	Only observation for period							
Dowitcher										
Marbled Godwit										
Avocet	27	7-28	150	8-25	Present rest of period					
Black necked Stilt										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	10	6-1	2,500	7/7/66	2,500
White-winged dove					9-1
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl					
Magpie	200	5-1	300	----	300
Raven					9-1
Crow					
Bald Eagle					
Turkey Vulture					
Red Tailed Hawk					5
Swainson's Hawk					4
A. Rough-legged					
F. Rough-legged					3
Marsh					1
Sparrow					10
Reported by <i>H. J. Johnson</i>					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

Form NR-1A
(Aug. 1952)

Refuge Ouray

Months of September 1 to December 31, 19 66

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production		(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Hared Grebe	60	9/1	261	10/23-29	1	12/1				
Great Blue Heron	1	9/1	1	9/1, 9/22	1	9/22				
Black Crowned Heron	12	9/1	12	9/1-3	12	9/3				
Glossy Ibis	75	9/1	75	9/1-3	6	9/22				
Western Grebe	2	9/8	222	9/29	4	11/10				
Double Crested Cormorant	1	11/10	1	11/10	1	11/10				
Sandhill Crane	31	9/21	100	10/10	100	10/10				
II. Shorebirds, Gulls and Terns:										
Killdeer	40	9/1	50	9/22	10	11/10				
Dowitcher	2	9/8	3	10/13	3	10/13				
Wilson's Phalarope	150	9/1	150	9/1-8	75	10/13				
Forester's Tern	60	9/1	60	9/1	60	9/1				
Ring-billed Gull	1	11/3	1	11/3	1	11/3				

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	2500	9/1	2500	9/1	20 12/2
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	2	11/10			Still present
Duck hawk					
Horned owl					
Magpie	300	9/1	350		Still present
Raven					
Crow					
Bald Eagle	2	10/20	4	11/29	4 11/29
Marsh Hawk	1	9/1	6	10/27-12/1	2 11/29
A. Rough-legged Hawk	3	9/1	3	9/1, 11/3	1 11/29
Sparrow Hawk					
Turkey Vulture	5	9/1			Still present
Red-tailed Hawk	4	9/1	4	9/1	2 11/17
					Clyde E. Nicely, Asst. Manager
Reported by					Clyde E. Nicely

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Quay For 12-month period ending August 31, 1966

Reported by H. J. Johnson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
Leota Bottom	Crops	0	Ducks	132,195	86
	Upland	3,172	Geese	2,800	0
	Marsh	24	Swans	0	0
	Water	1,284	Coots	36,225	0
	Total	4,480	Total	171,420	86
Sheppard Bottom	Crops	100	Ducks	201,773	34
	Upland	2,212	Geese	50,769	30
	Marsh	283	Swans	0	0
	Water	285	Coots	1,424	0
	Total	2,880	Total	253,966	64
Wyasket Bottom	Crops	0	Ducks	2,622	0
	Upland	3,425	Geese	0	0
	Marsh	438	Swans	0	0
	Water	217	Coots	708	0
	Total	4,080	Total	3,330	0
Wood Bottom	Crops	0	Ducks	38,300	0
	Upland	130	Geese	2,841	0
	Marsh	540	Swans	84	0
	Water	50	Coots	4,261	0
	Total	720	Total	45,486	0
Johnson Bottom	Crops	0	Ducks	6,000	0
	Upland	607	Geese	0	0
	Marsh	68	Swans	0	0
	Water	205	Coots	0	0
	Total	880	Total	6,000	0
Brennan Bottom	Crops	0	Ducks	40	0
	Upland	781	Geese	0	0
	Marsh	90	Swans	0	0
	Water	89	Coots	0	0
	Total	960	Total	40	0
Refuge Total:	Crops	100	Ducks	381,130	120
	Upland	10,327	Geese	56,410	30
	Marsh	1,443	Swans	84	0
	Water	2,130	Coots	42,618	Unknown
	Total	14,000	Total	480,242	150

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Gray Months of January to April, 1966

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs 'v' d. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Tree-brush complex River islands; Agri- culture Bottomlands, 3,750 acres	9				420	
Chukar Partridge	Benchland Brush; Rocky Escarpments, 3,500 acres	233				150	
Gambel's Quail	Tree-brush Complex; Benchland Brush, 3,160 acres	517				6	
* No observations made during this period.							

* Only columns applicable to the period covered should be used.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | (1) Species | (2) Density | (3) Young | (4) Sex | (5) Removals | (6) Total | (7) Remarks |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------|---------|--------------|-----------|-------------|
| (1) SPECIES: | Use correct common name. | | | | | | |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. | | | | | | |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. | | | | | | |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. | | | | | | |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. | | | | | | |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. | | | | | | |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. | | | | | | |

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Curay

Months of May 1 to August 31, 1966

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs 'v' d. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Tree-brush complex; river islands; agri- cultural lands 3,750 acres	5.7	25	150		650	
Chukar Partridge	Benchland brush; rocky escarpments			Not seen			
Sage Grouse	Benchland brush			Not seen			
Gambel's Quail	Tree-brush complex; benchland brush			Not seen			

* Only columns applicable to the period covered should be used.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | (1) SPECIES: | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Use correct common name. | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. | Indicate total number in each category removed during the report period. | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Ouay National Wildlife Refuge Months of September 1 to December 31, 19 66

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks		
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent infor- mation not specific- ally requested. List introductions here.
Ring-necked Pheasant	Tree-brush complex; river islands; agricultural lands 3,750 acres	4.2		250			900	
Chukar Partridge	Benchland brush; rocky escarpments 3,500 acres.						None seen	
Sage Grouse	Benchland brush						2 *	
Gambel's Quail	Tree-brush complex; benchland brush 3,100 acres						6 *	
	* Actually seen.							

* Only columns applicable to the period covered should be used.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Ouray National Wildlife Refuge Calendar Year 1966

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number								Number Source			
Mule Deer	Can be found using all of refuge, 13,000 acres.	30	28								150	50	

Remarks:

Reported by Clyde E. Nicely
Clyde E. Nicely, Asst. Refuge Manager

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Quincy Year ending April 30, 1946

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control*	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge Share				
Badger														
Striped Skunk														
White-tailed Jackrabbit														
Black-tailed Jackrabbit														
Desert Cottontail														
Coyote														
Bobcat														
White-tailed Prairie Dog														
Beaver														
Muskrat														
Raccoon														

*List removals by Predator Animal Hunter

*List removals by Predator Animal Hunter

REMARKS: * It would be difficult to even estimate the population of each species listed. There are no large populations of any. Two observations of Black-tailed Jackrabbits were made. This species has not been listed on the refuge before.

Reported by Gerald E. Gill, Assistant Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i.e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
 - (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge Ouray National Wildlife Refuge Year 19 66

Botulism

None

Lead Poisoning or other Disease

None

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.)

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge OurayCalendar Year 1966

1. Visits

a. Hunting 235 b. Fishing _____ c. Miscellaneous 196 d. TOTAL VISITS 431
 Misc. Recreation 86 321

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game	<u>235</u>	<u>7,500</u>	<u>Refuge</u>
Other			

Number of permanent blinds _____

Man-days of bow hunting included above 22

Estimated man-days of hunting on lands adjacent to

refuge 0*

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		

1c. Miscellaneous Visits

Recreation 86 Official 90
 Economic Use 20 Industrial 70

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools				
Service Clubs				
Youth Groups	<u>1</u>	<u>18</u>		
Professional-Scientific				
Religious Groups				
State or Federal Govt.				
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>3</u>	Radio Presentations	
Newspapers (P.R.'s sent to)		Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

Refuge Ouray National Wildlife Refuge Year 1966

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Sago- Pondweed (<u>Potamogeton pectinatus</u>)	25 lb.	R	9/30	Bear River Refuge	--		Leota Bottom Impoundments	12 lb/Acre	2 Acres	Seed	10/4		

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic 2 Acres
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: Seed was collected at Bear River Refuge and
scattered in five of the Leota Bottom impound-
ments. Success of the plantings will be
determined by future checks.

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Ouray County Uintah State Utah

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested Acres	Bu./Tons	Unharvested Acres	Bu./Tons			
* Fall Wheat			8	250 Bu	32	960 Bu.	40		40
Corn					40	2400 Bu.	40		40
Fall Wheat					36.5		36.5	36.5 - Green Browse	36.5
								Fallow Ag. Land	25

No. of Permittees: Agricultural Operations 0 Haying Operations 1 Grazing Operations 4

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa	6-3/4	20	\$44.96	1. Cattle	662	1090	\$374.00	6,693
				2. Other				
				1. Total Refuge Acreage Under Cultivation				116.5
Hay - Wild				2. Acreage Cultivated as Service Operation				

* Planted in 1965.

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Ouray National Wildlife RefugeMonths of January through December, 1966

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Spring Wheat	170 Bu.	0	170 Bu.			170 Bu.	170 Bu.	0			
Fall Wheat	0	317 Bu.	317 Bu.		67 Bu.		67 Bu.	250 Bu.		250 Bu.	
Corn Hybrid 544-A	0	6 Bu.	6 Bu.		6 Bu.		6 Bu.	0			

(8) Indicate shipping or collection points _____

(9) Grain is stored at Granary - Refuge Headquarters(10) Remarks * Harvested from refuge crop and stored for feeding waterfowl.

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

TIMBER REMOVAL

Refuge Ouay National Wildlife Refuge Year 1966

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Anderson, Ivan	36514, Amended, 2 amendments.	Leota, Sheppard, Wyasket and Wood Bottoms.	1,000 approx.	458,000 B.F.	1.00 per 1,000	\$458.00	Everything above 6" DBH to be felled.	Cottonwood
REMARKS: This timber was scaled and the number of units determined in advance of cutting. Full payment was received in February 1964. Permittee cleared Leota Bottom and part of Sheppard Bottom in 1964-65. This year he cut in Sheppard Bottom and on an island in the Green River off Wyasket Bottom.								

Total acreage cut over..... Total income.....

No. of units removed B. F. Method of slash disposal.....
 Cords.....
 Ties.....

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1966

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		None to report.						

10. Summary of results (continue on reverse side, if necessary)



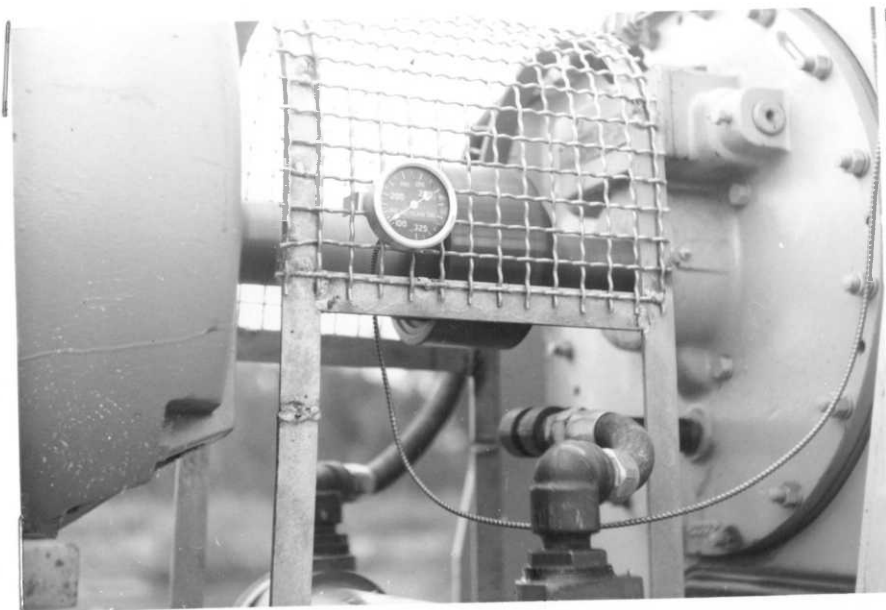
In mid-April, refuge personnel obtained the aid of a troop of Boy Scouts in a search for goose nests. Here Maintenanceman Littleton uncovers a nest and talks to the interested scouts.



One of the ten Canada Goose nests found on the refuge. From this successful nest in Sheppard Bottom hatched one of the six refuge broods that produced a total of 26 goslings.



The Leota Bottom pump. This \$20,000 installation is powered by a 125 h.p. motor which drives the pump, through the Gyrol transmission, to a variable output of 1,000 to 12,000 g.p.h.



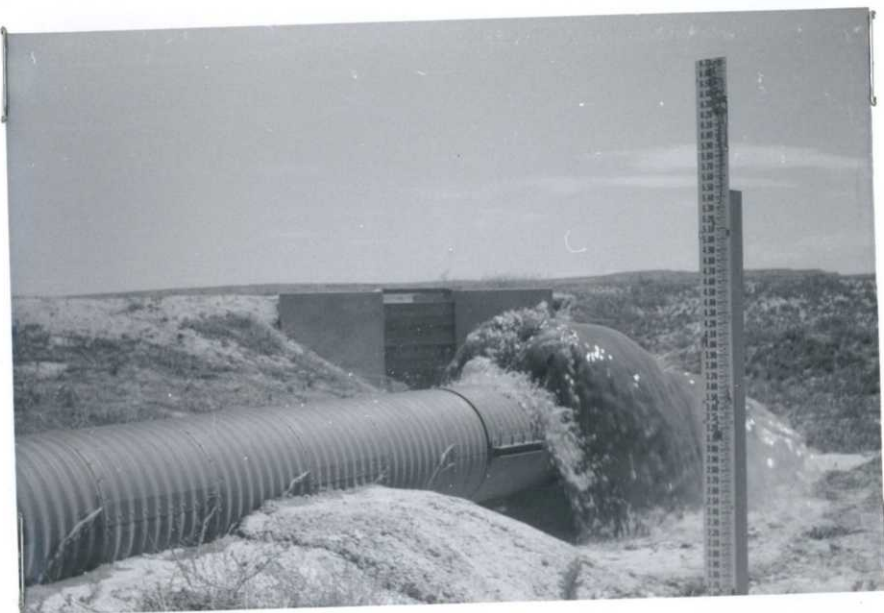
The oil of the Gyrol is kept a cool 120°-140° by a closed circuit-clean water cooling system. This clean water is in turn cooled by river water by-passed from the pump.



Looking downriver at the Leota Bottom pump inlet structure. High water in June 1964 inundated this facility.



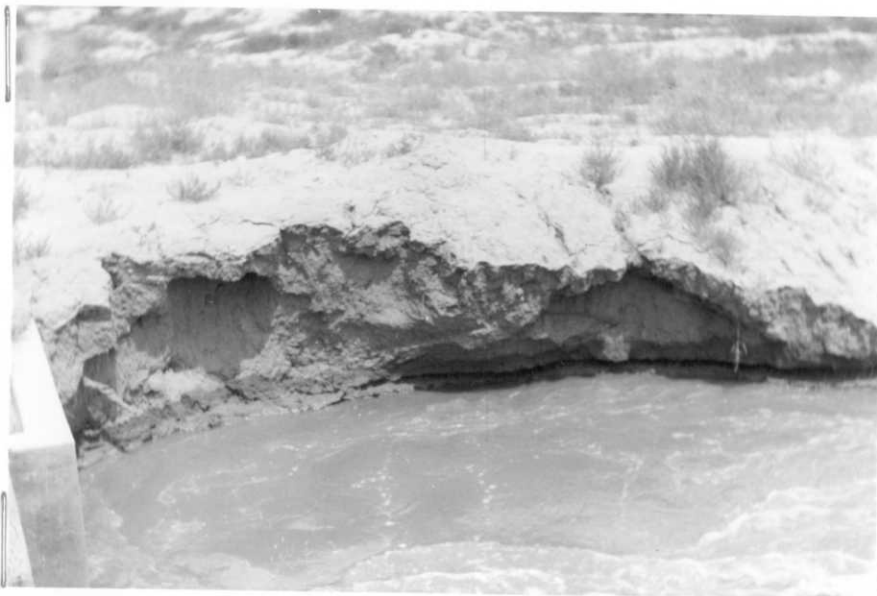
Looking upstream at the inlet structure. Built nearly flush with shoreline, it has been undermined and eroded by the river. The new structure will be set flush and parallel to the river bank.



The first water!! After a long wait, the pump turned water into the units on July 6. At last, management control -- we're a bird refuge!



The first unit to be filled was L-6 and problems showed up almost immediately. The supposedly stable bottomland soil began to melt away —



----- causing washouts above and -----



----- below the concrete drop structures. Emergency filling and riprapping allowed the pumping to continue, but the structures will have to be rebuilt or modified.



The new combination garage and service building. From left to right are: Four garage stalls, a stall designed with drains for a wash room and also for working on heavy equipment, the shop area with hydraulic hoist, a garage stall converted to a restroom-crew's room combination, and three more garage stalls. The two large central stalls and the crew's room are heated, giving the refuge crew a fine place to work on equipment, signs, etc. during the long winter months. This is a new design and is the first of its kind in the region.



On September 14, a strong westerly wind created waves that damaged the dikes of the west Leota units. Here, along the drain side of Unit 6, a two-foot shelf was cut into the spoil bank. A contract has been awarded for gravelling slopes and the tops of the dikes.



Dozer operators for Hansen and Phillips Construction Co. pushing up fill material for the L-10 Dike. Work on this mile-long structure was finished in December, completing the Leota Bottom diking.



The settling pond for the Leota pump was enlarged to double its former size using refuge personnel and equipment. Here the D-6 Dozer is being used to push up the new dike. The outlet structure was also modified to give horizontal discharge, rather than vertical.



Here can be seen the extent of the enlargement. The original pond is to the right of the picture. The weeds in the center are atop the old dike which was cut, but not entirely removed, to provide a baffle effect in the pond.

JULY 1968



The Sheppard Bottom Flood Control Dike. It was built to protect Sheppard Bottom from runoff water and also serves as base for a portion of the headquarters entrance road. The water from the refuge's shares of the Ouray Park Irrigation Co. can be stored behind this dike also.

These two pictures are of the refuge-built water control structure for the Sheppard Bottom Dike:

JULY 1966



The discharge structure, provided with stop logs for control of the water.

JULY 1966



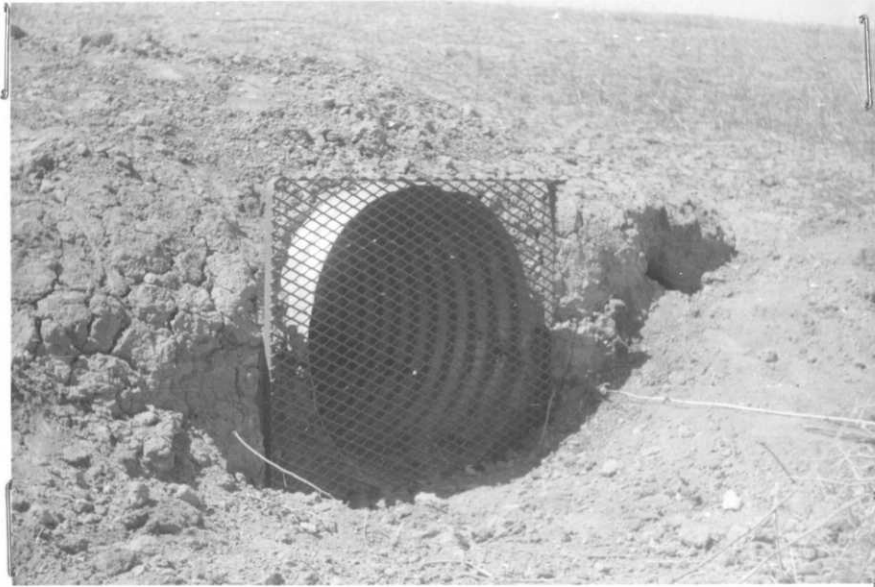
The outlet structure.



The long-bearded fall wheat crop produced very good yields where not choked by weeds. These fine grain heads provided good "eatin'" for ducks, geese and pheasants.



Here some of the wheat is being mowed for the fall migrants. Note the heavy aluminum shield behind the tractor operator. This detachable unit was built to protect the operator while using the roto-cutter mower.



The refuge dikes were constructed so that water could be passed from one impoundment to the other via these "through dike" 24" C.M.P. "screw gate" structures. This picture shows one of the screens suggested by Refuge's Supervisor Marcus Nelson to keep the beaver, other varmints and/or debris from plugging the gates, which are set 20' to 24' inboard.